



MINNESOTA DEPARTMENT OF NATURAL RESOURCES  
NORTHWEST REGION

ECOLOGICAL & WATER RESOURCES  
2115 BIRCHMONT BEACH RD NE  
BEMIDJI, MN 56601

August 2, 2016

Myron Jesme  
Red Lake Watershed District  
1000 Pennington Ave. South  
Thief River Falls, MN 56701

Dear Mr. Jesme:

The Minnesota Department of Natural Resources (DNR) thanks you for giving us the opportunity to participate in the watershed planning process for West Four-Legged Lake. The DNR is committed to working with local resource managers and the Red Lake Watershed District (RLWD) to improve the health of watersheds throughout Minnesota. As part of our commitment, in December 1998, the DNR was a party to the Red River Basin Flood Damage Reduction Work Group Agreement. This agreement is the framework for collaboration on flood damage reduction and natural resource protection and enhancement in the Red River Basin. This watershed planning process provides a great opportunity for us to work with the RLWD to identify issues of concern and put comprehensive plans in place to improve conditions within this watershed.

West Four-Legged Lake is a high diversity wetland, and the DNR is interested in maintaining that diversity. Currently, West Four-Legged Lake is within the top 5% of lakes in the state of Minnesota for aquatic plant species diversity. There are no game fish in the lake; however, the lake is being held high enough to maintain populations of minnow and bullhead species, both of which may have effects to water clarity.

Historically, the Four-Legged Lake chain contained large numbers of breeding ring-necked ducks, as well as migrating waterfowl. High water levels may diminish habitat in the lakes for breeding and migrating waterfowl, thus DNR recommends that the plan not consider holding additional water above current levels. Restoring the outlet elevation back to the level prior to it being raised in the late 1990's may enhance wildlife habitat within the basins, and provide additional storage capacity for peak flow reduction. Also, if water levels drop too low, this may lead to germination of narrow leaved cattail, which would eventually lead to diminished habitat and diversity. DNR will work with you to optimize water levels for wildlife enhancement purposes while meeting the other purposes of the project.

These lakes functioned as total winterkill lake with no permanent fish populations. In 1997, the culvert at the outlet of the western most basin (also called Lower sub-basin) was replaced at a higher elevation than the previous culvert, which effectively raised water levels throughout the chain. In 2010, DNR received a request to determine the ordinary high water level elevation of West Four-Legged Lake as part of a request to lower a culvert under the Township Road on the west side of the lake. The culvert

had been illegally raised 2 feet approximately 15 years previous to the request, which impacted County Road 2. Attached is the report associated with the field delineation and hydrology surveys.

According to DNR's Lakes Database, West Four-Legged Lake is listed as a Type 5-Inland Open Fresh Water basin of about 490 acres. The ordinary high water level elevation (OHWL) on the eastern basin (also called Upper sub-basin) of West Four-Legged lake is 1430.00 with the outlet elevation that could not be determined in 2010 due to a beaver dam and plugged culvert, but the present runout elevation on the Township Road (233rd Ave.) was 1428.7 on top of the beaver dam. The OHWL elevation on the western basin (also called Lower sub-basin) of West Four-Legged Lake is 1429.30 with the outlet elevation of 1428.70. The highest known elevation on the lower sub-basin of West Four-Legged Lake was 1428.84 in 2010. All elevations are in NAVD 1988 datum. The different OHWL for the eastern basin (Upper) and western basin (Lower) portions of West Four-Legged Lake indicate that water levels have fluctuated separately and that conditions at the County Road 2 culvert provide the runout for the eastern (Upper) portion.

The project goal of reducing peak flows in the Red River may require significant storage capacity. Since flow and volume reductions are needed in the spring, achieving significant storage capacity may require either a winter draw down, or a significant increase in projected spring surface elevations. Summer pooling and winter drawdown would be detrimental to diversity. Alternatively, entering winter at a low elevation, but having the ability to store water with a water control structure in springs when needed may be a more feasible alternative at the West Four-Legged Lake. Maintaining a constant flow through the system, and optimally maintaining a minimum of one foot of water in each of the basins will achieve habitat goals. Additionally, beavers in the system may need to be controlled, and beaver dams and sediment at the outlet culvert of each lake may need to be removed on an annual basis. DNR recommends these issues be carefully examined during the feasibility, engineering, and environmental review phases of the planning process.

DNR recommends a thorough environmental review also take into consideration the below resources of concern:

- Public Water Resources Rules 6115.0220 and 6115.0221 on water control structures would require a Public Waters works permit from DNR for any changes to the water level control structure.
- West Four-Legged Lake is a priority shallow lake as defined by MNDNR's Shallow Lake Program Plan due to the association with the WMA.
- West Four-Legged Lake has been rated as having a rank of "Moderate" under Minnesota Biological Survey Site Biodiversity Significance Ranks ([http://www.dnr.state.mn.us/eco/mcbs/biodiversity\\_guidelines.html](http://www.dnr.state.mn.us/eco/mcbs/biodiversity_guidelines.html)) (see attached map). These ranks are used to communicate the statewide native biological diversity significance of each site to natural resource professionals, state and local government officials, and the public. The biodiversity ranks help to guide conservation and management. "Moderate" sites contain occurrences of rare species, moderately disturbed native plant communities, and/or landscapes that have strong potential for recovery of native plant communities and characteristic ecological processes. Also there is an

area in the watershed below West Four-Legged Lake around Norway Lake that is classified as "High". "High" sites contain very good quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes.

- West Four-Legged Lake is classified in the highest category of phosphorus sensitivity (see attached map and reference page). Phosphorus sensitivity was calculated using lake phosphorus and hydrology data. Based on the calculated phosphorus sensitivity, the significance of that sensitivity, and the presence of any negative trends in water clarity, lakes were grouped and assigned to one of three priority classes (high, higher, or highest). Highest ranking means it has the highest priority for protection or restoration.
- Three submerged aquatic plant species of special concern in Minnesota have been documented on West Four-Legged lake including southern naiad (*Najas guadalupensis* ssp. *olivacea*), spiny naiad (*Najas marina*), and widgeon grass (*Ruppia cirrhosa*). Humped bladderwort (*Utricularia gibba*), a rare plant, has also been documented.
- Wild rice is present in West Four-Legged Lake. This important native Minnesota plant has a high level of cultural, ecological, and economic values. Wild rice is one of the most important foods for waterfowl in North America and provides habitat for 17 species of wildlife listed in the MNDNR's Comprehensive Wildlife Conservation Strategy as a species of greatest conservation need (<http://www.dnr.state.mn.us/cwcs/index.html>).
- Trumpeter swans have been documented using West Four-Legged Lake for breeding. Trumpeter swans are listed as species of special concern in Minnesota under Minnesota's Endangered Species Act. Trumpeter swans were once extirpated from the state but through reintroduction efforts the current population estimate is 17,021 swans. Continued threats to the species include loss or degradation of wetland habitat, lead poisoning, power line collisions, and illegal shootings. West Four-Legged Lake WMA, an island in West Four-Legged Lake, is composed of northern hardwood forest with one small emergent wetland. The purpose of this WMA is to protect riparian and wetland habitat and to provide public access and use of the lake. The unit provides the public with waterfowl hunting and wildlife observation opportunities.
- There is an unnamed tributary to Ruffy Brook that flows out of West Four-Legged Lake into Ruffy Brook. Ruffy Brook has been listed as impaired for fecal coliform. DNR recommends that a priority be made to investigate the source of this fecal coliform.

DNR recommends the following alternatives be considered and thoroughly reviewed in the planning process:

- Examine all culverts within the system be place them at an elevation that will maintain optimally at least 1 foot of water in all lakes at all times. If water levels fall below this level, there is a risk of germination by narrow leaved cattails.
- Restore the primary outlet elevation to an optimum condition to maintain species diversity. Plant species diversity in the lake should be maintained, and the habitat in the lake can be enhanced for breeding and migrating waterfowl.

- Develop an alternative that would return the lake to a lower level in the fall to provide a more frequent thorough winterkill which may help improve and maintain water clarity.
- Develop an alternative that places a water control structure at the southwest culvert, and on the occasions when needed, holding water in the basins for a short period in the spring. In this way the Red Lake Watershed District would have some water holding capacity to help meet the 20% goal of flood damage reduction in the Red River Basin.
- Develop and adopt a comprehensive water level management plan for desired surface water elevations specific to each season, each basin, and a range of conditions.

Thank-you again for the opportunity to comment. If you have any additional questions, please contact me at [Theresa.olson@state.mn.us](mailto:Theresa.olson@state.mn.us) or at 208-308-2672.

Sincerely,

A handwritten signature in black ink, appearing to read 'Theresa Olson', written in a cursive style.

Theresa Olson

Regional Environmental Assessment Ecologist